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Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Version 3.0.0.3

Developer's Toolkit Installation Guide (IRIX 6.2)

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Preface

The following conventions have been used in this document:

[HELVETICA FONT]	Used to indicate keys to be pressed. For example, press [RETURN].
`Courier Font`	Used to indicate entries to be typed at the keyboard, operating system commands, titles of windows and dialog boxes, file and directory names, and screen text. For example, type the following command at the prompt: `tar xvfp /dev/nrtape`
Italics	Used for emphasis.

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1. Introduction

1.1 Overview

The Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer's Toolkit contains the components needed to create segments that use DII COE components. The Developer's Toolkit is distributed separate from the DII COE Kernel on magnetic media in relative `tar` format. The Developer's Toolkit should be installed *only* after the IRIX 6.2 Operating System and the DII COE Kernel have been installed. Reference the *DII COE Kernel Installation Guide (IRIX 6.2)* for instructions on installing the IRIX 6.2 Operating System and the DII COE Kernel.

By default, developer's tools are located underneath the `DII_DEV` directory and are distributed as part of the Developer's Toolkit. The actual location of the Developer's Toolkit may vary from system to system because it is installed via a `tar` command. For example, if the toolkit is tarred to `/h`, the path would be `/h/DII_DEV`.

As distributed, the Developer's Toolkit contains (1) 10 developer tools (CalcSpace, CanInstall, ConvertSeg, MakeAttribs, MakeInstall, TestInstall, TestRemove, TimeStamp, VerifySeg, and VerUpdate); (2) a setup script called `MakeTOOLSEnv`; (3) a data file called `TapeSizes` that contains a list of known tape devices; (4) an Application Programmer Interface (API) `examples` directory and `include` and `libs` directories; (5) a `SampleSegments` directory; and (6) a `man` directory. The Developer's Toolkit does not contain any products that require a license (e.g., compilers, editors, relational database management systems). The developer is responsible for acquiring these items as needed. Reference the *DII COE Version Description Document for the Developer's Toolkit (IRIX 6.2)* for more information about the Developer's Toolkit.

Developer's Tools
The 10 developer's tools can be run from the command line, and some can be run from other code using published APIs. The following developer's tools are included in the DII COE Version 3.0.0.3 delivery. The *DII COE Integration and Runtime Specification*, the *DII COE Programming Guide (IRIX 6.2)*, and the *DII COE API Reference Guide (IRIX 6.2)* describe these tools and their functionality in more detail.

- **CalcSpace** Version 1.0.0.4—Computes the space required for the segment specified and updates the hardware descriptor.
- **CanInstall** Version 1.0.0.6—Tests a segment to see if it can be installed, which means that all required segments must already be on the disk and the disk cannot have any conflicting segments.
- **ConvertSeg** Version 1.0.0.7—Examines a segment's segment descriptors and converts them to the *DII COE Integration and Runtime Specification* segment format.

- **MakeAttribs** Version 1.0.0.7—Creates the descriptor file `FileAttribs`, which recursively traverses every subdirectory beneath the segment home directory and creates a file with lines in the proper format.
- **MakeInstall** Version 1.0.1.5—Writes one or more segments to an installation medium or packages the segments for distribution over the network.
- **TestInstall** Version 1.0.0.7—Installs a segment (temporarily) that already resides on disk.
- **TestRemove** Version 1.0.0.6—Removes a segment that was installed by TestInstall.
- **TimeStamp** Version 1.0.0.6—Puts the current time and date into the `VERSION` descriptor of the specified segment.
- **VerifySeg** Version 1.0.0.7—Validates that a segment conforms to the rules for defining a segment.
- **VerUpdate** Version 1.0.1.5—Increments the segment version number and updates the date and time in the `VERSION` descriptor of the specified segment.

`MakeTOOLSEnv` Setup Script

The `MakeTOOLSEnv` setup script is located in the `DII_DEV/Scripts` directory. The setup script defines the environment variables required for developer's tools processing. This script should be sourced before running the developer's tools.

`TapeSizes` Data File

The `TapeSizes` data file is located in the `DII_DEV/data` directory. The data file contains a list of known tape devices. This file is used as a convenience feature with the MakeInstall tool.

> **NOTE**: The environment variable `TOOLS_DATA` must be set and pointing to `DII_DEV/data` to allow MakeInstall to access this file.

`examples` Directory

The `examples` directory contains a list of example C programming files, which show developers how to use the public APIs. The required public `include` files are also shown. Examples are located in the `DII_DEV/examples` directory.

`include` Directory

Public `include` files are used to compile with the public APIs. Public `include` files are located in the `DII_DEV/include` directory.

`libs` Directory

Public API libraries are located in the `DII_DEV/libs` directory.

`SampleSegments` Directory
The `SampleSegments` directory contains sample DII COE segments, which can be used to show developers how the 10 developer tools work. Sample segments are located in the `DII_DEV/SampleSegments` directory.

`man` Directory
Public man pages are located in the `DII_DEV/man` directory.

1.2 Installation Preparation

The following questions must be answered before you install the DII COE Developer's Toolkit. Your system administrator should provide you with the appropriate answers.

1. Does the system have an internal tape drive? If so, what is the tape drive number?

2. Is an external tape drive attached to the system? If so, what is the tape drive number?

3. What is the controller number?

NOTE: The tape drive number and the controller number can be found by typing the following command at a prompt:

```
hinv [RETURN]
```

Information similar to the following appears:

```
CDROM: unit 4 on SCSI controller 0
Tape drive: unit 3 on SCSI controller 0
Disk drive: unit 2 on SCSI controller 0
```

The tape drive number is the number following the words "`Tape drive: unit`". For the tape drive shown above, the tape drive number is `3`. The controller number is the number following the words "`SCSI controller`". For the tape drive shown above, the controller number is `0`.

1.3 Referenced Documents

The following documents are referenced in this installation guide:

- *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Kernel Installation Guide (IRIX 6.2)*, DII.30003.IRIX62.Kernel.IG-1, Inter-National Research Institute (INRI), October 14, 1997

- *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Version Description Document for the Developer's Toolkit (IRIX 6.2),* DII.3003.IRIX62.DTK.VDD-1, Inter-National Research Institute (INRI), October 14, 1997

- *Defense Information Infrastructure (DII) Common Operating Environment (COE) Integration and Runtime Specification* Version 2.0, DII COE I&RTS:Rev 2.0, Inter-National Research Institute (INRI), October 23, 1995

- *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Programming Guide (IRIX 6.2),* DII.3003.IRIX62.PG-1, Inter-National Research Institute (INRI), October 14, 1997

- *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Application Programmer Interface (API) Reference Guide (IRIX 6.2),* DII.3003.IRIX62.RG-1, Inter-National Research Institute (INRI), October 14, 1997

- *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.1.0 System Administrator's Guide (HP-UX 10.20 and Solaris 2.5.1),* DII.3010.HPSOL.AG-1, Inter-National Research Institute (INRI), April 14, 1997.

2. Developer's Toolkit Installation

Follow the steps below to install the DII COE Developer's Toolkit.

NOTE: By default, the Developer's Toolkit is located under the `DII_DEV` directory. Developers, however, may install the Developer's Toolkit on the disk in any directory they desire. For example, if the toolkit is tarred to `/h`, the path would be `/h/DII_DEV`.

NOTE: Installing the Developer's Toolkit takes 2-3 minutes.

STEP 1: **Log in as `root`**. In the DII COE login screen, type `root` in the `Name` field and press [RETURN].

STEP 2: **Enter the `root` password**. Type the `root` password in the `Password` field and press [RETURN]. The Common Desktop Environment (CDE) Front Panel appears at the bottom of the screen. Reference the *DII COE System Administrator's Guide (HP-UX 10.20 and Solaris 2.5.1)* for more information about CDE.

STEP 3: **Open a terminal emulator window**. Click on the Text Editor—Personal Applications control subpanel and then click on the Terminal control. A terminal emulator window appears.

STEP 4: **Move to the directory where you want to install the Developer's Toolkit**. Type the following command at the prompt to move to the `/h` directory or to another directory of your choice:

```
cd [directory of your choice][RETURN]
```

STEP 5: **Install the Developer's Toolkit**. Type the following command to install the Developer's Toolkit, where X is the controller number and Y is the tape drive number:

```
tar xvfp /dev/rmt/tpsXdYnrns [RETURN]
```

NOTE: Reference Section 1.2, *Installation Preparation*, for instructions on determining your controller number and tape drive number.

The Developer's Toolkit installs.

After the `tar` command is performed, all of the components of the Developer's Toolkit will reside under the `DII_DEV` directory. The Developer's Toolkit components are listed below:

data files	`DII_DEV/data`
public header files	`DII_DEV/include`
public libraries	`DII_DEV/libs`
executables	`DII_DEV/bin`
manual pages	`DII_DEV/man`
scripts	`DII_DEV/Scripts`
examples	`DII_DEV/examples`
sample segments	`DII_DEV/SampleSegments`

Figure 1. Developer's Toolkit Components

Developers should include `DII_DEV/bin` in the path environment variable for their development environment. The `DII_DEV/man` directory should also be included in the search path for UNIX manual pages. Developers must source the `MakeTOOLSEnv` setup script. This will set up the following four environment variables: `MACHINE`, `MACHINE_CPU`, `MACHINE_OS`, and `TOOLS_HOME`. Read the `README` file at the top level of the `DII_DEV` directory for more information about these environment variables.

Developers are encouraged to submit tools to the COE community for inclusion in the Developer's Toolkit. All tools submitted must be license and royalty free and must include a manual page for on-line documentation. Developers who want to release source code for their contributed tools may do so, and the source code for each tool will be organized under the `DII_DEV/src` directory.

Reference Section 6.0, *Development Environment*, of the *DII COE Integration and Runtime Specification* for a more detailed explanation of the development environment.